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ABSTRACT

Described are changes in American higher education and the impact on students and society. The early liberal arts colleges, the influence of the German universities and specialization, and efforts to restore integrated and broad studies are considered. The author stresses that environmental education requires broad thinking and that it should be understood as a multidisciplinary process rather than as a discipline. Environmental education is viewed as providing the persuasive rationale for broad, integrated education that general education lacked. Several challenges to environmental education are presented; potential problems are also identified. The need for a team approach to research and instruction is emphasized. (RH)

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By

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April, 1976

"LOGS, UNIVERSITIES AND THE ENVIRONMENTAL EDUCATION COMPROMISE"

A keynote address delivered at the annual convention of the National Association of Environmental Education, April 27, 1976 in Atlanta, Georgia

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At an alumni banquet in 1871 the future President of the United States James A. Garfield wished to honor the legendary leader of Williams College, Mark Hopkins. "The ideal college," Garfield declared, "is Mark Hopkins on one end of a log and a student on the other."* Garfield's remark illustrates the integrated concept of education embodied in the 19th century liberal arts curriculum of America's schools and colleges. For the student facing him on Garfield's metaphorical log, Mark Hopkins was the college. Like a bee with pollen, his mind collected knowledge, digested it, related it and spread it before his pupils. Since Hopkins was not a specialist, since the object of his instruction was to produce what the 19th century called a "well-rounded" individual, the aim of his teaching could not help but be integrated, general education.

This, of course, was the goal of the classic liberal arts curriculum that Williams and the other colleges of the early 19th century featured. The point of going to college--and the same could be said of preparatory schools of the time--was to develop the broad catholic outlook characteristic of a learned individual. Inspired by the English universities, especially Oxford and Cambridge, America's early colleges were not vocationally oriented. Their purpose was to train minds and build character, not to teach specific skills or bodies of specialized knowledge. One studied mathematics, for example, to learn how to reason logically, not to become a mathematician. One read literary classics to refine taste and acquire

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*Frederick Rudolph, The American College and University: A History (New York, 1962), p. 243.

wisdom. Nobody at that time expected a 500 page dissertation on the significance of the bow of Odysseus.

The product of this educational program might best be styled a "gentleman" (and before 1865 when Vassar opened its doors almost all college students were men). He was articulate in writing and in speaking, and was comfortable in at least one foreign language. He was at home in the world of quantity and measurement, but his flexible mind also appreciated beauty in form, sound and color. He knew a good deal about the world of nature, but also about the world of man. Firm of conviction and clear in his values, the liberally educated man did not hesitate to apply his learning to the problems of his society. Indeed a society of broadly educated citizens, in the Jeffersonian mold, was a primary goal of this 19th century educational endeavor. Such persons could make the reasoned decisions on which the successful future of the republic depended.

Doesn't that composite of the well-rounded college graduate of say, the 1830s, resemble quite remarkably what we today refer to as an "environmentally literate" individual? So what happened? Why is Environmental Education currently a reforming influence trying to get a foot in the door of the American house of learning instead of being its most honored guest? The answer, quite clearly, is that educational ideals changed after the Civil War. The cause of the change was the infulence of the Germanic university.

In sharp contrast to the liberal arts colleges, the universities that rose in the United States in the last third of the 19th century adopted a fragmented or reductionist approach to education. Their

method was to reduce the pie of knowledge to ever narrower slices and to probe to unprecedented depths beneath the crust. "Research" became the new academic god, its object was the extension of knowledge, and its hallmark was the Ph.D.

Undeniably, the Germanic model of education was enormously exciting. Knowledge was not just being transmitted from one end of the Mark Hopkins' log to the other, it was being created. When Dartmouth-graduate George Ticknor traveled to Germany in 1815 he was astonished to find professors at the University of Göttingen working eighteen-hour days in the library and laboratory. The Mr. Chips image of a teacher was totally shattered for Ticknor forever. He remained in Europe to become the first American to receive a Ph.D. and, in 1819, returned to a professorship at Harvard. Ticknor tried to reorient Harvard's liberal arts curriculum toward the Germanic mode, but he remained a prophet without much honor given prevailing educational assumptions in the United States.

There were, of course, excellent reasons for American education to hitch itself to the German academic star. Knowledge was proliferating at a breathtaking rate. Those who did not specialize increasingly found themselves without anything significant to say about complex subjects. A single mind, even that of Mark Hopkins', could not possibly contain everything society needed to know. Progress depended on specialization. This was the message emanating from Gottingen, Bonn, Berlin, Leipzig, Paris and the other European centers of higher learning.

One of the first American educators to see the writing on the academic wall was Charles W. Eliot whose long tenure as president

of Harvard began in 1869. Eliot was the prime mover in transforming Harvard from a college into a bona fide university. His tool was the "elective system". Under Eliot's program, Harvard undergraduates no longer had to take the prescribed curriculum considered essential for a well-rounded education. Instead, they could pick and choose from a widening array of increasingly specialized offerings. They could, as the new term put it, "major" in a discipline. Other subjects were excluded from their degree requirements.

The impact of Charles W. Eliot and the "elective system" on Harvard were striking. When Eliot's term as president began, the institution had only sixty faculty members. Forty years later the sixty had increased to six hundred! The division of knowledge into finer and finer specializations required more and more specialists. The advent of "departments" and their mitosis into more departments is another way to gauge the change the university ideal brought. In the old-time college there had been no academic departments. A professor simply was a faculty member of the college; the new ordering saw the sciences veer sharply from the humanities. Both stood apart from the social studies. Departmentalization occurred within these academic territories. And the process of division and separation continued. In the case of the University of Chicago, the Department of Biology became five departments: Zoology, Botany, Anatomy, Neurology and Physiology. This, of course, meant five new chairman, five more professorial hierarchies and the intensification of competitive academic territorality.. Other fields experienced the same mitosis. Departments of Political Economy became Departments

of History, Departments of Political Science, Departments of Economics and Departments of Anthropology. Departments of Language became Departments of German, Departments of French, Departments of Spanish. Even within the proliferating departments, specialization drove persons and knowledge apart. The expert on the history of German foreign policy in the 18th century had little to say to the historian of the Woodrow Wilson administration; the professor who had devoted twenty years to the study of a pine tree fungus found little in common with a colleague down the hall whose speciality was urinary malfunction in cattle.

A natural concomitant of these changes was a rapid increase in the percentage of Ph.Ds. on college and university faculties. In 1884 Harvard could count only nineteen holders of the Doctorate among 189 faculty members. The University of Michigan had six Ph.Ds. on a faculty of eighty-eight. Twenty years later it was virtually impossible to obtain a professorial appointment at either of these institutions without the Ph.D. By this time the American university was a reality thanks to the work of men like Harvard's Charles W. Eliot, Andrew D. White at Cornell, Daniel Coit Gilman at Johns Hopkins University, G. Stanley Hall of Clark and Chicago's William Rainey Harper. Presidents like these buried, but did not quite kill, the old liberal arts tradition.

The products of the university system, particularly at the graduate level, were minds that knew more and more about less and less. Publishing and promotional criteria contributed significantly to this process of ever-finer honing. Books and articles were published because they offered something new that could stand the test of rigorous criticism. The narrower the subject, the

greater the chance of mastery. Students who desired to integrate knowledge or work on the breadth rather than depth projects were advised to become more "professional" which meant more specialized. Libraries filled with narrow, technical studies unrelated to each other or to the problems of the day. The Renaissance man, with his wide-angle vision became the subject of derision as a dilettante.

Consider, as an example of the effect of university training, the author's own professional development. In high school I was simply a student, but soon after entering college advisers urged me to think about focusing my attention on either the humanities, social studies, or sciences. Later I was obliged to choose a major: history. By my senior year, "history" became "American history". At the master's level, I concentrated on American Social and Intellectual History, but my Ph.D. dissertation involved a small corner of that field: American attitude toward national parks and wilderness. Further specialization found me studying Yosemite National Park, then one part of it (the Hetch Hetchy Valley where a dam was constructed), and finally the history of the Hetch Hetchy controversy between 1908 and 1913! At this point the profession deemed my research worthy of publication. I was a big fish in a very, very small pond. Six years of effort had brought me to a position where I could talk about my subject to hardly anyone except myself. Still, no one had ever walked these scholarly trails before; I was proud of adding my brick to the pile of knowledge. That was the frustrating ambivalence of the university system.

The implications of such a system for Environmental Education are unequivocal. No one with professional ambitions in a university or in advanced secondary education would dare to dabble in a subject as general

as "environment". Branching out from the pyramid of increasingly-refined scholarship, instead of climbing it to the rarefied upper levels, was tantamount to academic suicide in the German inspired American university.

Even as university ideals rose to dominance in American education, rebellion against them began. Environmental education's roots lie in this new wave of educational philosophy. Actually, it was a conservative reform, aimed at restoring something of the integrated liberal arts perspective submerged by the academic specialization of the half century following the Civil War.

Because the established colleges and universities were often hard to change, some reform endeavors took place at new institutions. Reed College in Oregon opened its doors in 1912. Its curriculum deemphasized departments in favor of a broad liberal arts approach to learning. In 1921 Antioch College in Ohio launched its experimental work-study program. This practical, problem-oriented course of study anticipated several aspects of environmental education. Florida's Rollins College was reorganized in 1926 with the explicit purpose of implementing the Socratic ideal of the complete man. Its student teacher ratio of ten to one, although not quite a two-person log, was also reminiscent of the old-time liberal arts college.

The older campuses also felt the winds of academic reform. Columbia, which, under the leadership of Seth Low, became a leading American university in the late 19th century, went the other direction in 1919 with its "Great Books" program. Its purpose was to expose students to a core of man's best wisdom. Columbia's "Contemporary Civilizations" courses, a requirement of all undergraduates, had the same intent. The

assumption was that no one could claim to be educated unless he had encountered the great thinkers and great ideas of the collective human endeavor. Robert M. Hutchins, the iconoclastic Chancellor of the University of Chicago, launched a similar attack on vocationalism, empiricism, and specialization in the 1930s. In their place he proposed an almost medieval curriculum of prescribed courses in logic, the classics and rhetoric.

It was Harvard, however, that struck the heaviest blow against the trend toward specialization and isolation. The same institution whose adoption of the elective system in 1869 did so much to launching the university movement turned away from its implications in 1945 with a report entitled General Education in a Free Society. Its purpose was to restore, at least partially and at the undergraduate level, the liberal arts ideal -- the concept of knowledge as a body of integrated thought and values that defined the educated man. General Education, as it was instituted at Harvard in the late 1940s, required all students regardless of their major to take courses in each of the three broad categories: the humanities, natural sciences and social studies.

General Education was a deliberate retreat from the tendency of the Germanic university ideal to compartmentalize knowledge. It would, in a sense, force scientists to read poetry and require poets to become familiar with the goals and methods of science. Significantly, Harvard's adoption of General Education came directly on the heels of a striking example of the limitations of tunnel-vision knowledge: the unleashing of the power of the atom and its use in August 1945 in the devastating bombing of the Japanese cities of Hiroshima and Nagasaki. The intellectual impact of the atomic bombs was also intense. Thoughtful people realized

the irony of scientific success. What many regarded as the human mind's greatest triumph in theoretical and applied physics resulted in the instantaneous murder of more human beings (80,000) than ever before in history. The conclusion could not be avoided: science, undiluted with ethical and humanitarian influences, could be man's greatest problem rather than his greatest blessing.

It would be unfair, of course, to lay the entire blame for Hiroshima and Nagasaki at the feet of academic specialization, but many felt that the universitiy's rejection of integrated knowledge created a climate of opinion in which atomic bombs could be made and dropped by persons of frighteningly narrow expertise. General Education was an attempt to educate minds which could realize and avoid the liabilities of the scientific method while enjoying its benefits.

The roots of Environmental Education lie in the same era and mentality as the beginnings of reaction against the university ideal. As early as 1891 Wilbur Jackman's Nature Study for the Common Schools launched a nature study movement which took students outdoors to explore an indivisible environment with an integrated academic approach. Outdoor Education, as it was called by theorists such as L.B. Sharpe and Julian Smith in the 1920s, had a very similar purpose. The disection of a frog or the study of soils in a laboratory usually had very little relation to the total context in which such things occurred. In the outdoors, however, it was impossible not to see this context and, incidentally, to see the interrelationship of frogs and soil. Nature Study and Outdoor Education forced an appreciation of the multiplicity of factors that the classroom tended to isolate. Knowledge was integrated by an integrated environment.

The "Dust Bowl" mentality of the 1930s gave rise to Conservation

Education. Its primary object was to awaken Americans to environmental problems and the importance of conserving various natural resources. Because Conservation Education focused on problems which themselves were products of many interrelated factors, students exposed to such programs pursued a more integrated learning program. Clearly such an approach ran counter to prevailing academic theory as it filtered down from the universities into colleges and schools.

As it developed in the late 1960s, Environmental Education continued the same basic questioning of the reductionist and compartmentalized approach to teaching and learning. The lowest common denominator of the many varieties and levels of Environmental Education is a multidisciplinary, problem-oriented approach. Seen in the light of the present discussion, such now-cliched words carry new connotations. To be multidisciplinary, or some would say "interdisciplinary", is to go directly against the grain of the last century of the mainstream of American education. It is to avoid the reductionist pyramid and, instead, to reach out at a low level to other pyramids, other disciplines. A multidisciplinary approach also means rejection of the idea that knowledge is divided into so many pidgeon holes and that extending knowledge means reaching back further and further into the holes.

A problem-orientation, the other lowest common denominator of Environmental Education, also insures an integrated approach to knowledge. Just understanding why an airshed is polluted, for instance, demands a knowledge of chemistry and meterology but also, as one probes for more basic causes, of politics, economics, intellectual history and the ethical and religious systems of a culture. The polluted air's affect on the environment makes the full range of biological and health

sciences relevant. Solving an air pollution problem necessitates the involvemnet of law, education, planning and communication. The environment, after all, is indivisible; so must be its study. The focus on problems cuts across disciplinary lines.

Against this background it is easier to understand why Environmental Education should be understood as a multidisciplinary process rather than a discipline in itself. Rightly seen, Environmental Education does not compete with or replace biology, economics or political science. It is, rather, a way of bringing these and other appropriate disciplines to bear on environmental problems. Environmental Education acts like an umbrella over the academic community: it draws upon the disciplines as needed. Although frequently confused and resented as such, Environmental Education is not a discipline in the sense that English and physics are disciplines. It is a catalyst of disciplines. The individual practitioner of environmental education may sometimes contribute from the perspective of several disciplines. But given the breadth of environmental problems and the many subjects involved in their solution he will invariably have to fall back on specialized expertise. The important point is that the environmental student or teacher knows what questions to ask and to whom to direct them. He also knows how to interpret the answers and fit them into the jig-saw puzzle of environmental problem solving. The real speciality of Environmental Education is synthesis. Concerned as he is with a complex, indivisible environment, the environmental educator deals constantly with the interrelationships and interdependencies of the various disciplines. He functions, so to speak, as an ecologist of the academic community.

Environmental Education might also be viewed as purposeful General Education. If it is, the principal defect of the General Education idea is corrected. Welcome as General Education was in 1945 as a way of finding relief from the parallel pits of fragmented knowledge, it had obvious shortcomings. The chief of these, and the bane of thousands of undergraduates, was that there seemed "no point" to studying, say, Shakespeare if you were a Chemistry major or astronomy if you were majoring in History. And, in truth, the complaint was justified. The proponets of General Education rested content with merely getting a degree of breadth back into the curriculum. They did not defend General Education other than in the vague cliches of the well-rounded mind. Actually, in a vicious circle, they created many of the same resentments that the old liberal arts curriculum fostered when students of the 1850s wondered why they had to study Latin and theology.

Environmental Education to the rescue! Because of its multidisciplinary approach to actual problems it provides abundant and graphic reasons for wide-ranging, integrated knowledge. Moreover, the problems of concern are not contrived and "academic"; rather they are among the most vital facing contemporary civilization. No thoughtful person can honestly ask, "Why study about nuclear energy?" when, as a voter, he is being called upon to make decisions about this subject that may well prove the most consequential of his lifetime. Environmental Education, to come right to the point, provides the persuasive rationale for broad, integrated education that General Education lacked.

The General Education ideal can easily be converted to Environmental Education. It is an unimaginative teacher indeed who cannot find ways of finding most of the subjects he wishes to teach in the

broad area of man-environment relations. And relating the sciences, or social studies, or humanities to real-life environmental problems is a perfect way of giving these categories of knowledge meaning, importance and excitement to minds that might otherwise ask, "What's the point?" Molecular structure, to take just one instance, may not be very attractive if it is presented to General Education students obliged by college requirement to take a course in the physical sciences. But if molecular structure were taught in connection with potentially-disastrous disturbance of the ozone layer of the upper atmosphere by freon released from aerosol cans like the student used that morning, there is compelling rationale for the study. Serious science or serious humanities, for that matter, can be snuck in the back door by the imaginative environmental educator. The result is essentially the same as that of General Education; Environmental Education just provides the spoonful of sugar.

Fantasizing about the prospects of Environmental Education as the new, purposeful General Education, I occasionally muse on the prospect of a core of six superb courses in Environmental Education. I imagine these six courses required, as part of a revamped General Education program, of every college graduate. I see them taught through extension, night and summer schools to every elementary and secondary teacher and to many adults. When I really get into the fantasy I see Congress adjourning for a year so that every member can take the sequence. The nirvanic result is that rainbow end of an environmentally literate citizenry--a society capable of structuring its relationship with the envrionment in a responsible manner for the long term. Here is the fulfillment of the Jeffersonian dream of an educated citizenry,

but, given modern priorities, recast as an environmentally educated citizenry capable of making the decisions on which the future of the republic hangs today just as it did in Jefferson's time. The advantages of General Education are widely recognized; the challenge is to prove that Environmental Education is General Education and to have it recognized as a necessary prerequisite for effective participation in today's society.

Crystal balls are subject to shattering but possibly worth a few concluding comments. Environmental Education will, in the future, face several problems capable of destroying or at least severely altering its mission. One pitfall that must be avoided is academic isolationism. It is possible for Environmental Education in secondary or higher academic levels to build for itself the same kind of disciplinary cocoon that in theory it seeks to break down. I have argued that Environmental Education is not a discipline, but rather a multidisciplinary process that uses many disciplines. As such, it must maintain a broker position on the campus--utilizing, but not competing with, the traditional disciplines. While a core of Environmental Education faculty is certainly necessary, it would be a mistake to build an Environmental Education empire that turns its back on colleagues in other fields.

The plight of Black Studies on many campuses is a dramatic warning to Environmental Studies programs. Originally intended to integrate the study of the Afro-American experience into the curriculum, many Black Studies programs have evolved into isolated units taught by and for Black persons. Instead of making the Black experience a campus-wide concern, such an approach fragments and isolates. Black Studies programs seek support for offering their own courses in history or

music rather than using faculty resources in those departments. In some situations demands extend to the absurd end of demanding courses in Black Biology and Black Chemistry. What's Black Chemistry? Perhaps a kind of alchemy? The point is, that as Environmental Education becomes more successful, it will be increasingly difficult to resist the same kind of specialization and empire building that fragmented curriculum under the university system.

Another challenge Environmental Education must face in the future is stemming the gradual erosion of environmental studies into Environmental science. At the University of California at Santa Barbara our program is called "Environmental Studies", abbreviated ES, and it is remarkable on how many tongues and typewriters it comes out "Environmental Science". The slip may be a bit Freudian. The sciences, of course, play a major role in any program in Environmental Education, but only one role. To address any environmental problem at its root is to deal with the fundamental cause--man and his ideas, mind pollution. This takes the course of study far from the sciences. And so, perhaps three times a day, I explain as patiently as I can why we call our program "Environmental Studies" and not "Environmental Science" and why the difference is important.

To approach this problem another way, the humanities and social studies have a future responsibility to make their subject areas meaningful and relevant to Environmental Education. As yet, philosophy, religious studies, English, art, history and anthropology have not emerged very far from their tents despite the indisputable contributions they could make to Environmental Education. And these disciplines must not sulk in those tents, waiting for Environmental Education to

beg them to emerge. They must take the offensive and prove their worth. I anticipate more and more humanists developing the confidence and the public responsibility that will lead them further from the ivory tower and closer to the Environmental Education endeavor.

Despite its manifold organizational difficulties, I think the future for Environmental Education lies in the team approach. The concept of a Renaissance environmental man is simply not realistic given the complexity of environmental problems. The environmental educator, like the environmental problem-solver, must sharpen his ability to utilize expertise. His challenge is to marshall the experts who know a lot about those metaphorical trees into a team that can understand the forest. No one person can possibly amass enough knowledge about enough subjects to meet the need of ordering man-environment relations for long-term harmony. Of course, this applies more to environmental research than it does to teaching. In some instructional situations it may be possible for a single mind to synthesize the appropriate knowledge. But I believe that in the future there will be decreasing chances of this occurring successfully. Teammates, with specialized knowledge, will be needed.

On the level of graduate teaching and research I see little future role for Environmental Education as we currently understand it. Teacher training is something else, but Masters and Doctorate work must continue to involve the graduate student in a speciality. A Ph.D. in environmental studies, like one in music, might be granted, but the assumption is always that some specialized skill was developed. No musician plays every instrument---at least not well. But I do look for the specialists of the future, unlike those of the Germanic

university, to preserve a catholic view that recognizes the importance of other specialities. The vital importance of broad Environmental Education training at the secondary and undergraduate levels, before the specialization takes place, is obvious.

One exception to this tendency is the possibility of graduate work in environmental impact assessment. Our society is in desperate need of what might be called "certified environmental accountants". Such persons could utilize the tools created by the state and federal laws requiring environmental impact statements far more effectively than the present crowd poorly trained pretenders who conduct most impact assessments. Environmental Education would reach its zenith in the work of this new breed of professionals; it is a goal worth working towards on the graduate level.

In sum, Environmental Education of the future must wend its way between the scilla of fragmented knowledge as deified by the university and the charibdis of purposeless General Education that verges on dilettantism. To do this Environmental Education must become a catalyst of disciplinary knowledge. It must find a way of compromising between the log of Mark Hopkins and the German-inspired university. There is a place for each in the future of American Education and Environmental Education as the new, purposeful General Education has the best chance of leading us toward such a future.